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HOME ECONOMICS

UNITED STATES DEPARTMENT OF AGRICULTURE  
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DEMONSTRATIONS TO SHOW THE EFFECTS OF ADEQUATE AND  
INADEQUATE DIETS

Good health and growth depend upon adequate food and plenty of it. An animal confined to a diet that does not supply all of the essential nutrients will show the effects of this inadequate diet either by failing to grow or by poor physical condition. One of the common faults of human dietaries is that they do not contain enough of the foods essential to good nutrition. Feeding demonstrations with rats designed to show the striking contrast between animals fed inadequate diets and those fed diets containing foods that supply adequate amounts of all of the essential nutrients make this idea clear to children as well as to adults. For instance, a rat given only bread and water will not grow. This does not mean that bread is not a good food. It simply means that this single food does not supply all of the things essential for good growth and good nutrition. If the rat is given meat, vegetables, and milk along with the bread and water, he will grow in a normal way. The meat, vegetables, and milk supply the things that are not contained in the bread. All this merely illustrates the fact that a variety of foods is needed to assure an adequate diet.

1. Demonstration to show the behavior of rats  
when given a restricted or an adequate diet

Put four or eight 28-day old rats on the following diets:

1. Bread and water
2. Bread, water, and meat
3. Bread, water, meat, and vegetables (carrots, spinach, cabbage, etc.)
4. Bread, water, meat, vegetables, and milk

If it is not possible to obtain four rats the test may include diets 1 and 4.

Amounts of food required daily by each rat: 1/4 slice of bread; about 1 tablespoon milk in a drinking cup, or 0.2 gram of milk powder on the food; 3/4 inch cube of fresh lean raw beef; a small amount of vegetables (about 5 grams). Let the rats eat as much of the food as they wish but take out any left-overs the next day when the cage is cleaned.

Time required for demonstration: 6 to 10 weeks\* (Page 2)

Observations: Observe the animals for weight, growth, condition of fur, and eyes, and straightness of limbs.

2. Demonstration to show the effect of  
substituting coffee for milk

In a community where the besetting sin of children is to make coffee and bread a large proportion of their diet, a good comparison may be made by feeding the two following diets:

1. Bread, water, vegetables, meat, and coffee
2. Bread, water, vegetables, meat, and milk

Amounts of food required daily by each rat are the same as given under 1.

Time required for demonstration: 6 weeks\*

3. Demonstration to use in a district  
where pellagra is prevalent

Put two or four 28-day old rats on the following diets:

1. Corn bread, salt pork, coffee, and water
2. Corn bread, salt pork, water, vegetables, and milk

Amounts of food required daily by each rat: 1 inch cube of corn bread; 1/4 inch cube of salt pork; 1 to 2 tablespoons milk; about 5 grams of vegetables; and coffee in drinking glass (it may be necessary to take away the water to make the rat drink the coffee).

\*If the rats are continued too long on the inadequate diets their condition is apt to disturb the children. It is better to avoid this by giving the rats some good food once in a while.

Reference

"A Five-Year Study of Nutrition Teaching in the 5th and 6th grades of the Elementary School," by Mary Swartz Rose, in Columbia University, Teachers' College Record, May 1930.

## CAGING AND CARE OF ANIMALS

An easily constructed cage for rats

## Material for one cage

Piece galvanized wire screening, 3 squares to the inch; 9" x 30"

Two pans approximately 10" in diameter and 3" in height

## Cage construction

Hold piece of screening lengthwise

Fold one narrow end of rectangle forward one inch

Fold opposite narrow end backward one inch

Interlock folded ends, forming cylinder

Hammer down ends of wire to make firm

## Setting up cage

Place shavings or layer of newspaper in pan

Set the cage in the pan

Cover over with the second pan

If cages have to be moved for demonstration purposes, the pans may be made secure by twisting strands of copper wire through two holes made in the pan and the wire of the cage. These wires may be easily untwisted when it is necessary to clean the pans.

Food and water cups

Squat jelly glasses, ointment jars, or fruit jars may be used. Place the glasses on the bottom of the cage. They may be made secure by fastening them to the side of the cage with copper wire. This is not necessary, however, unless the rats are large and tip them over.

Care of animals

Provide fresh water daily

Clean water cups and food cups at least twice a week by scrubbing in hot soapy water

Papers should be changed daily

The pans should be scrubbed at least once a week. Cleaning will prevent odor.

The animals must be protected from drafts and should be kept in a room with as uniform a temperature as is possible, since they are susceptible to colds, pneumonia, etc. If necessary the cages may be covered with newspaper or blankets. When keeping the rats in a recitation room it is also well to place them in a corner where they will not be disturbed too much. If they are carried from school to school in cold weather, wrap cages in newspaper.



